

# A broad scale seabed substrate map of the Portuguese coast

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## INTRODUCTION

The MeshAtlantic project aimed to generate a broad-scale habitat map for the shelf and coastal area of the Atlantic Area. Till 2012, a detailed seabed substrate map of the Portuguese coast, which covers a great extension of the Western Iberian coast, was not known.

## AIMS

Create an easy-to-use broad scale seabed substrate map of the Portuguese coast.

## MATERIAL & METHODS

- ✓ Collation of historical maps from the Portuguese Hydrographic Institute (IH, 1985, 1986, 2005, 2010 a,b,c) and other cartographic information (e.g. Dias & Nittrouer, 1984; Pombo, 2004; Pinto, 2006; Oliveira et al., 2007; Gonçalves et al., 2010; Martins et al., 2012). Preliminary map preparation involved scanning, georeferencing and digitizing of pre-existing maps.
- ✓ Collection of new sedimentary data, which was obtained from ~500 sediment samples (Fig.3), distributed along the entire Portuguese coast, but mostly concentrated in areas with poor sedimentary data available (in the scope of the MeshAtlantic, RENSUB and ACOSHELF projects).
- ✓ Grain-size analysis by dry and wet sieving (Quintino et al., 1989). Expression of raw grain-size data as weight percentages.
- ✓ Harmonization of historical and new data according to a simplified version of the Folk classification system (Fig.1), adapted by the project.

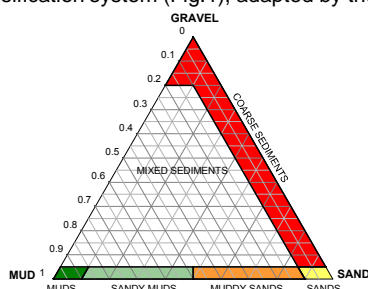


Figura 1 – Simplified version of the Folk classification system, according to the MeshAtlantic project.

- ✓ Creation of a new seabed substrate map in an easy-to-use GIS interface, which will be available in the MESH Atlantic webGIS, as part of a global broad scale habitat map for the Atlantic Area.

## RESULTS

Classification of the new sedimentary data according to the simplified version of the Folk classification system.

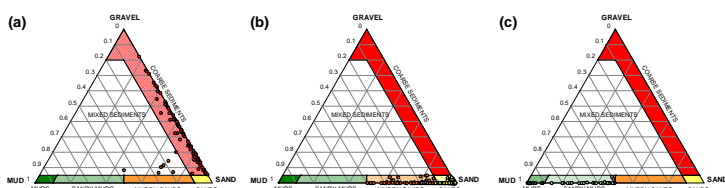


Figure 2 – Grain-size sediment samples representation in the simplified Folk ternary plot: (a) coarse and mixed sediments; (b) sands and muddy sands; (c) muds and sandy muds

Representation of the broad scale seabed substrate map of the Portuguese coast after the collation and harmonization of historical and new substrate data.

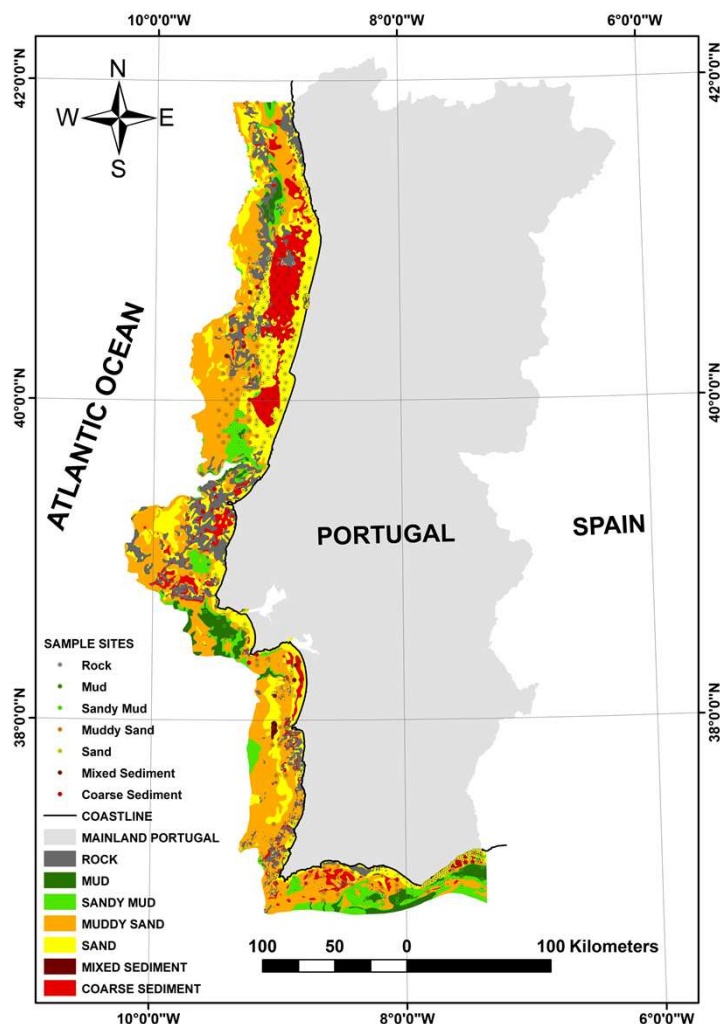


Figure 3 – Broad scale seabed substrate map of the entire Portuguese coast, up to 500 m water depth. Spatial Reference: UTM, WGS 1984.

## FINAL REMARKS

Overall, the Portuguese coastal and continental shelf is characterized by:

- ✓ rocky outcrops, irregularly distributed along the entire shelf;
- ✓ mud and sandy mud patches, off the major rivers, namely Guadiana (south), Tagus (west) and Douro (northwest) and near the major Portuguese submarine canyon (Nazaré, west coast);
- ✓ muddy sand, all over the deeper western shelf and western part of the southern shelf;
- ✓ sand, near the coast or surrounding rocky outcrops or coarser deposits;
- ✓ coarse sediment deposits, mainly in the northwestern shelf sector, south of the Nazaré and Setúbal canyons, and sparsely in the southern shelf.
- ✓ residual patches of mixed sediments.

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